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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,933	09/23/2004	Petri Nenonen	915-005.123	9875

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EXAMINER	
CHOWDHURY, AFROZA Y	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/508,933	NENONEN, PETRI	
	Examiner	Art Unit	
	Afroza Y. Chowdhury	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/23/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 7, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, "**all measures**" is not clear. What measures the applicant is referring to? There are no measures claimed in previous claim. Is the applicant is referring to determining?

Regarding claims 7 and 11, "A mobile device comprising a display unit, an image memory for holding a digital image, and an image improvement unit for improving said digital image displayed on the display unit, said image improvement unit being arranged to process said digital image by means of an image processing method; to determine parameters for said image processing method at least partly on the basis of an instantaneous property of the display, and a property of the digital image." It is not clear whether these claims are **method** or **apparatus** claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 7, and 11, are rejected under 35 U.S.C. 102(e) as being unpatentable by Duncan et al. (US Patent 6597394).

As to claim 1, 7, and 11, Duncan et al. discloses a mobile device (col. 23, lines 60 – 65) comprising a display unit (fig. 2(210)), an image memory (fig. 2(203)) for holding a digital image, and

an image improvement unit (fig. 3, col. 5, lines 1-11) for improving said digital image displayed on the display unit (col. 4, lines 13-17),

said image improvement unit being arranged to process said digital image by means of an image processing method (col. 4, lines 42-27, col. 5, lines 28-60, Note: ITP is referred as an image processing method);

to determine parameters for said image processing method at least partly on the basis of an instantaneous property of the display, and a property of the digital image (col. 4, lines 26-41).

As to claim 2, Duncan et al. teaches a method wherein all measures are repeated at a repetition rate (col. 22, lines 23-55), as best understood.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3–5, 8–10, 14–16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al. (Patent No. US 6597394) in view of Ouderkirk et al. (Patent No. US 6124971).

As to claim 3 and 14, Duncan et al. discloses a technique of processing digital images on a LCD display (fig. 2(210) of a mobile device (fig. 10, col. 23, lines 60 – 65). He does not explicitly teach detecting a change in instantaneous properties of a display and repeating "determining and processing" measures when a change is detected.

Ouderkirk et al. teaches transreflective display wherein change between ambient and backlighting conditions can be detected, and the measure of polarization depending on those two conditions (col. 14, lines 34-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to combine the change of the transflective display as taught by Ouderkirk et al. with the image processing method of Duncan et al. because this will provide more efficient, low power consumption, and better brightness and contrast (col. 2, lines 13-17 of Ouderkirk et al.).

As to claim 4 and 15, Ouderkirk et al. discloses imaging on a display under ambient and backlighting conditions (col. 14, lines 49-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to combine the techniques of Ouderkirk et al. Duncan et al. to develop a method wherein determination of parameters is based on an operation mode of the display to achieve desired display appearance for different display applications.

As to claim 5, 8, and 16, Ouderkirk et al. teaches transflective displays with reflective polarizing which increases efficiency and brightness in display (fig. 7-8, col. 2, lines 20 –26, col. 12–13, lines 41–46, 7–19).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to combine transflective display of Ouderkirk et al. with the

technique of digital image processing of Duncan et al. since it will provide low power consumption, better brightness, and increased contrast to produce easily read displays under both ambient and supplemental conditions (col. 2, lines 13-17 of Ouderkirk et al.).

As to claim 9 and 18, Duncan et al teaches a mobile device with an image sensor (fig. 1, col. 4, lines 66-67, col. 5, lines 1-8) in the display unit. The image sensor (CMOS device) has cells, and the quality of images can be improved by increasing the number of cells.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to combine to incorporate a mobile device wherein said image improvement unit is provided in the display unit in order to improve the quality of display.

As to claim 10 and 19, Duncan et al teaches a mobile device with an image sensor (fig. 1, col. 4, lines 66-67, col. 5, lines 1-8) outside the display unit. The image sensor (CCD) has cells, and the quality of images can be improved by increasing the number of cells.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to incorporate a mobile device wherein an image improvement unit is provided outside the display unit and is arranged to communicate therewith in order to improve the quality of display.

7. Claims 6, 12, 13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan et al. (Patent No. US 6597394) in view of Ouderkirk et al. (Patent No. US 6124971) as applied to claims 3–5, 8–10, 14–16, 18, and 19 above and further in view of Khan et al. (Pub. No. US 20020101554).

As to claims 6, 12, 13, and 17, Duncan et al. as modified by Ouderkirk et al. (col. lines 13–17) teaches digital image processing on transflective display (col. lines 13–17). None of the references teach any of the sub-methods of saturation increase, color componentwise histogram stretch, and unsharp masking in image processing method.

Khan et al. discloses a method for adjusting color saturation in a display device (page 14, [0145], [0148], fig. 19).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to combine the techniques of Duncan et al. (as modified by Ouderkirk et al.) with Khan et al. is teachings of adjusting color saturation of a display because this will allow the display of Duncan et al. to have a greatly increased brightness and color purity of the display (col.14, [0145] of Khan et al.).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afroza Y. Chowdhury whose telephone number is 571-270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-2600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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AMARE MENGISTU
SUPERVISORY PATENT EXAMINER